



# **ARIZONA - SONORA INTERCONNECTION Project**

**Presentation to  
White House Task Force  
on  
Energy Project Streamlining**

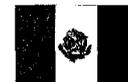
March 5, 2002





## **Purpose of the Presentation**

- ◆ **A brief introduction to the project sponsor, Public Service Company of New Mexico.**
- ◆ **Description of the Sonora-Arizona Interconnection Project (S-AIP)**
- ◆ **Discussion of interconnection concepts and the benefits of interconnections between the United States and Mexico.**
- ◆ **Summary of EIS process and permitting issues**
- ◆ **Status of Project permitting activities**





# Introduction to PNM

- ◆ **A regional, investor-owned public utility company headquartered in Albuquerque.**
- ◆ **Ownership interest in Generation and transmission facilities in Arizona as well as New Mexico. Major taxpayer in Arizona with 10.2% interest in Palo Verde since inception.**
- ◆ **Currently provides retail electric and gas service in New Mexico and is the wholesale supplier for the Navapache Cooperative in Arizona.**
- ◆ **Major player in southwestern wholesale market for over 25 years**
  - ◆ **Over 63% of 2000 electric commodity business consisted of Wholesale sales to other companies**





# Introduction to PNM

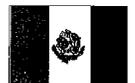
- ◆ **Highly experienced in the construction and operation of generating plants and transmission lines.**
- ◆ **Over 15 years of experience in construction and operation of DC Interconnections between large systems ( WSCC and Southwest Power Pool).**
- ◆ **Committed to operating profitably to the benefit of our communities while achieving superior levels of environmental performance and to be recognized as a leader in environmental stewardship.**

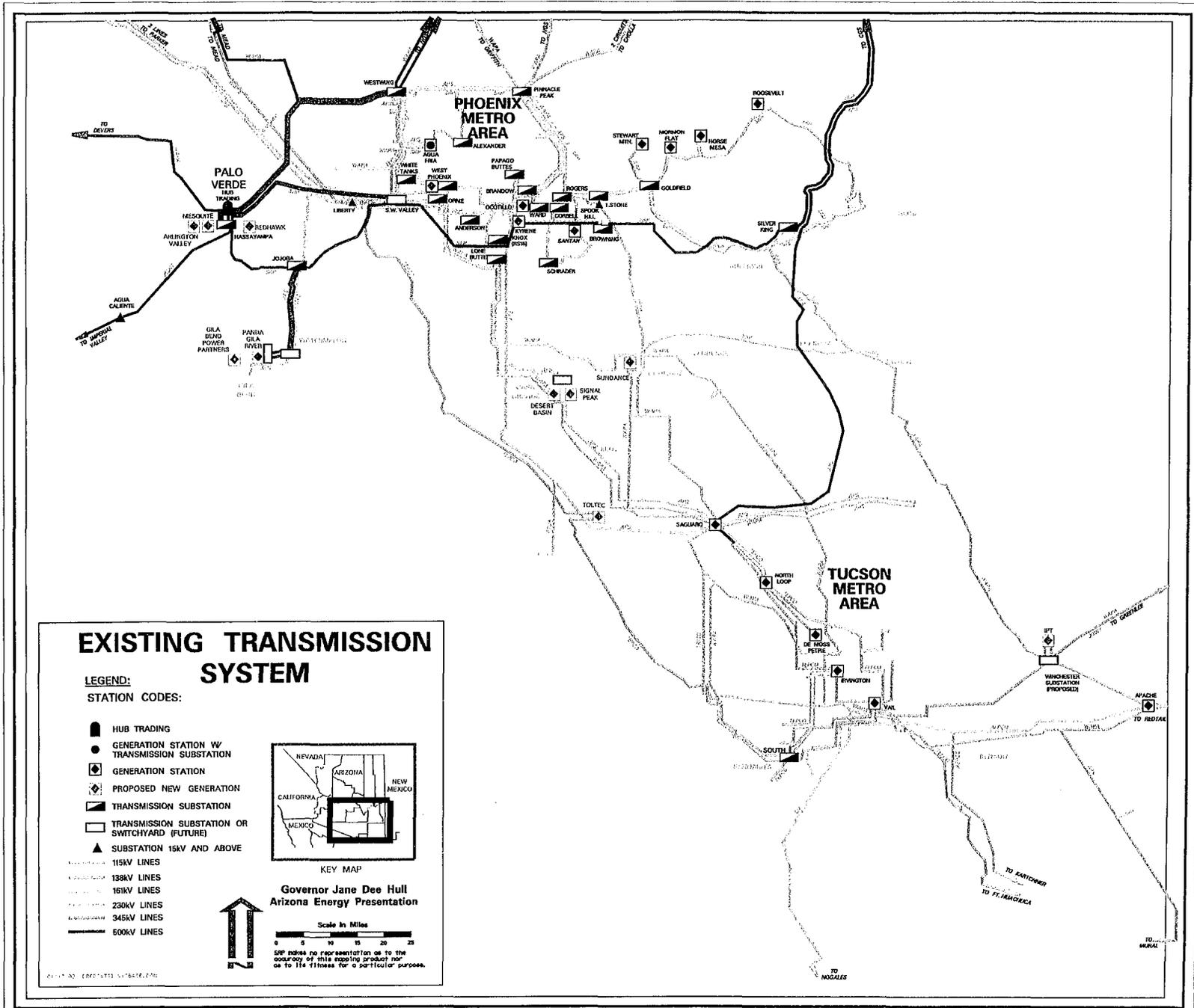




# Description of the Sonora-Arizona Project

- ◆ Purpose is to create a large capacity electrical interconnection between the southwestern United States and northwestern Mexico
- ◆ Proposal consists of two new high voltage transmission lines from the “Market Hub” at the Palo Verde Substation in Arizona to the Santa Ana Substation in Sonora
- ◆ Includes a “converter station” near the border to provide reliable and secure operation of the interconnection
- ◆ Would be the first large capacity interconnection between the US system and the Mexican National Grid



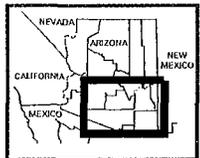


# EXISTING TRANSMISSION SYSTEM

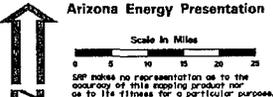
**LEGEND:**  
STATION CODES:

- HUB TRADING
- GENERATION STATION W/ TRANSMISSION SUBSTATION
- ⊕ GENERATION STATION
- ◊ PROPOSED NEW GENERATION
- ▣ TRANSMISSION SUBSTATION
- TRANSMISSION SUBSTATION OR SWITCHYARD (FUTURE)
- ▲ SUBSTATION 15kV AND ABOVE

- 115kV LINES
- 138kV LINES
- 161kV LINES
- 230kV LINES
- 345kV LINES
- 600kV LINES



KEY MAP  
Governor Jane Dee Hull  
Arizona Energy Presentation



REVISED: 08/01/93 5/15/94 2/95

SIP makes no representation as to the accuracy of this existing product nor as to its fitness for a particular purpose.

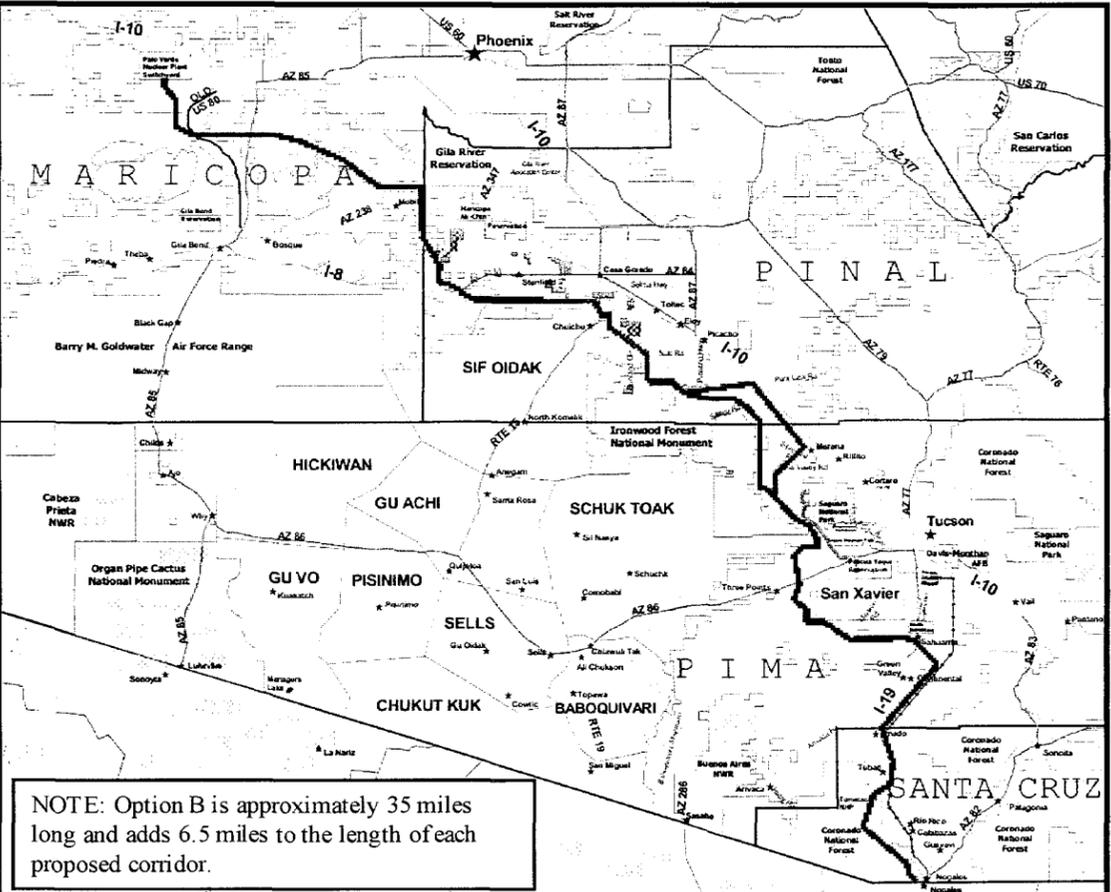
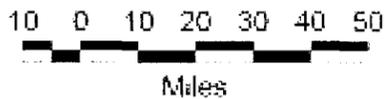




## East Valley Corridor

N A N B

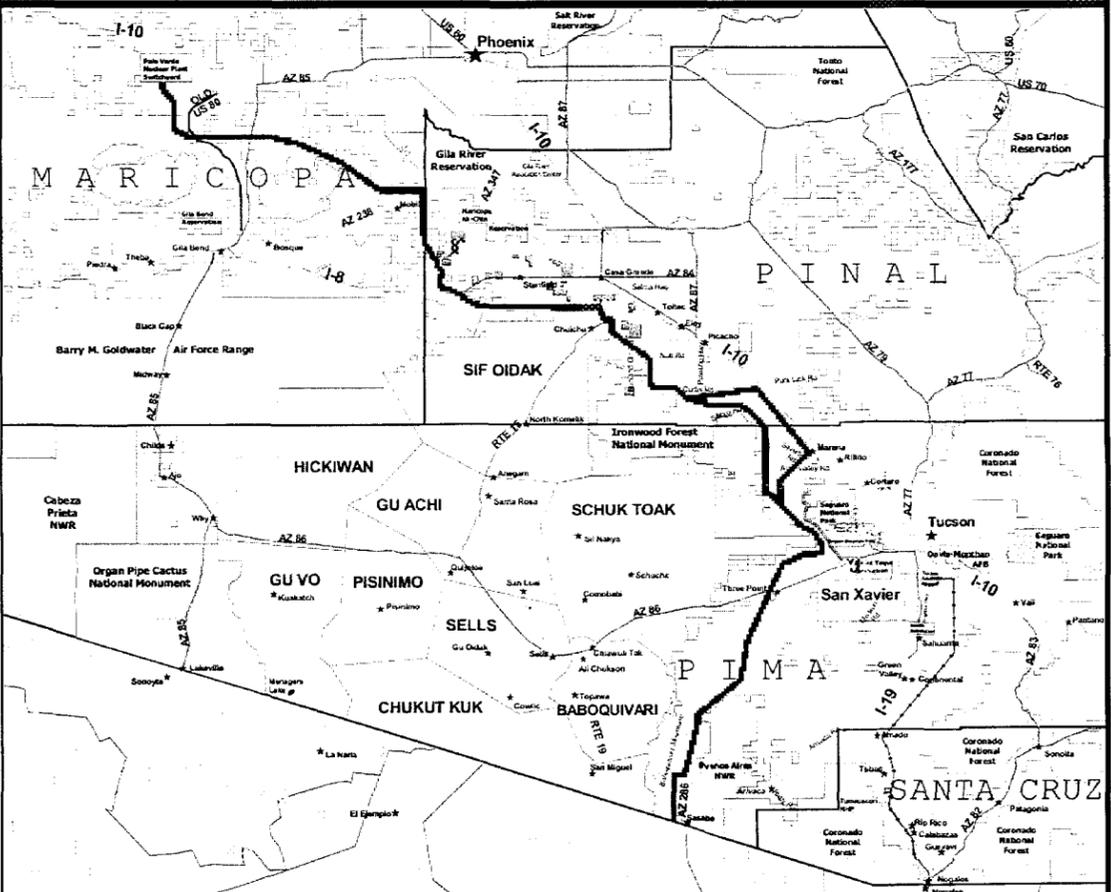
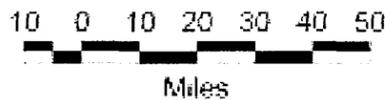
This corridor runs about 240 miles from the Palo Verde Nuclear Generating Station (PVNGS) Switchyard to Nogales. South of Picacho, this corridor's A and B Options diverge. Option A continues south, paralleling the north and east boundaries of the Ironwood Forest National Monument. Option B turns due east, then southeast paralleling I-10 to Marana, then southwest to rejoin Option A. The corridor then runs between the Ironwood Forest National Monument/Tohono O'odhar Nation and Saguaro National Park/Tucson Mountain Park. It continues south, then east, crosses I-19, parallels an existing transmission line, crosses I-19 again, and continues through the Coronado National Forest to Nogales.



## Sasabe Corridor

N A N B

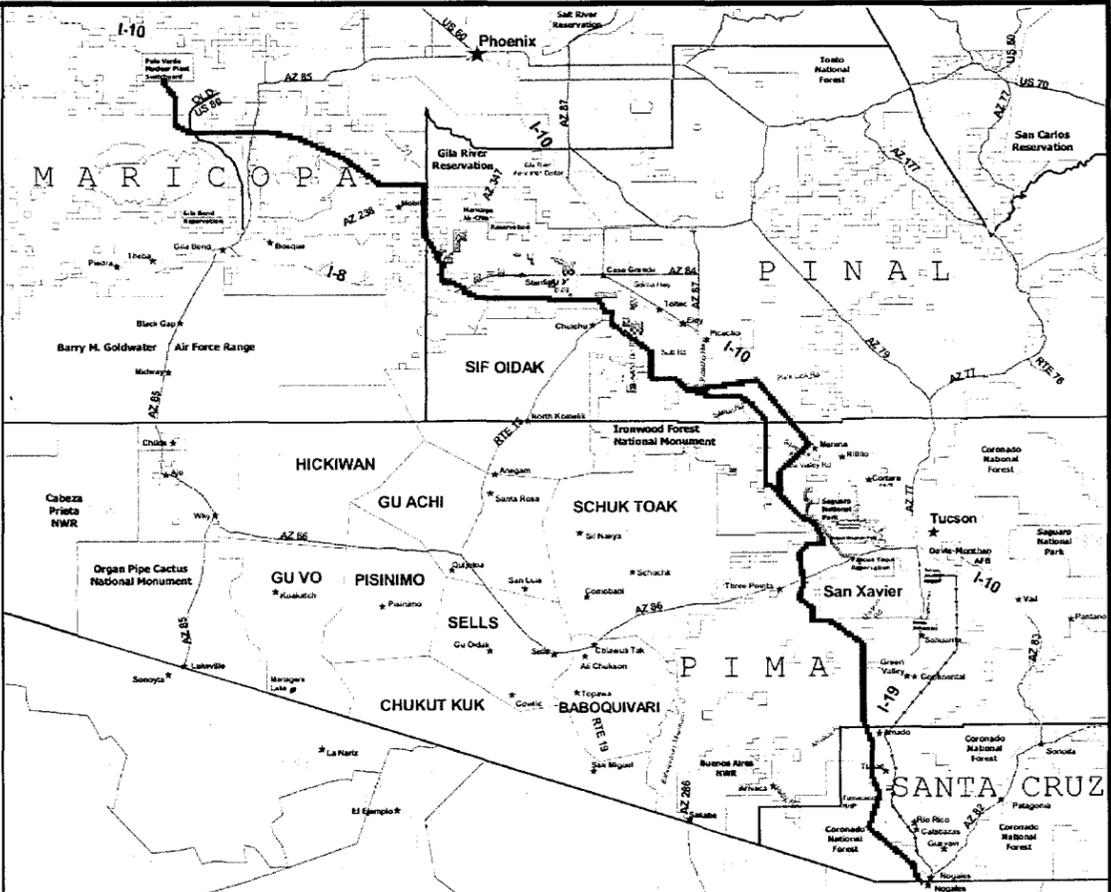
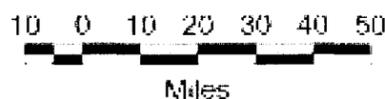
This corridor runs about 210 miles from the PVNGS Switchyard to Sasabe. South of Picacho, this corridor's A and B Options diverge. Option A continues south, paralleling the north and east boundaries of the Ironwood Forest National Monument. Option B turns due east, then southeast paralleling I-10 to Marana, then southwest to rejoin Option A. The corridor then runs between the Ironwood Forest National Monument/Tohono O'odham Nation and Saguaro National Park/Tucson Mountain Park. The corridor continues south, before turning southwest to Sasabe.



## Pipeline Corridor

N A N B

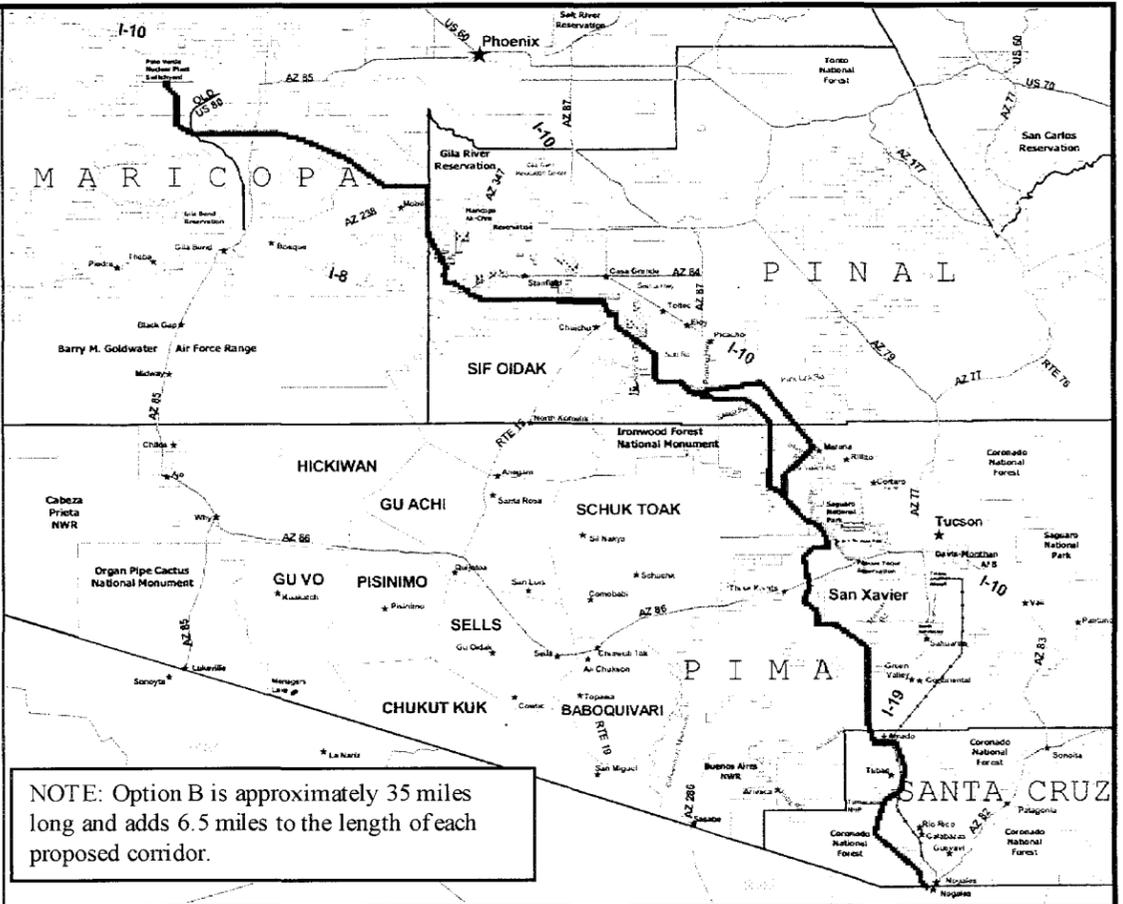
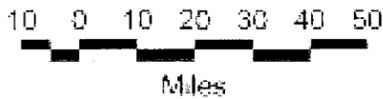
This corridor runs about 240 miles from the PVNGS Switchyard to Nogales. South of Picacho, this corridor's A and B Options diverge. Option A continues south, paralleling the north and east boundaries of the Ironwood Forest National Monument. Option B turns due east, then southeast paralleling I-10 to Marana, then southwest to rejoin Option A. The corridor then runs between the Ironwood Forest National Monument/Tohono O'odham Nation and Saguaro National Park/Tucson Mountain Park. The corridor continues south, remaining west of I-19, and parallels an existing natural gas pipeline to Nogales.



## Cross-Over Corridor

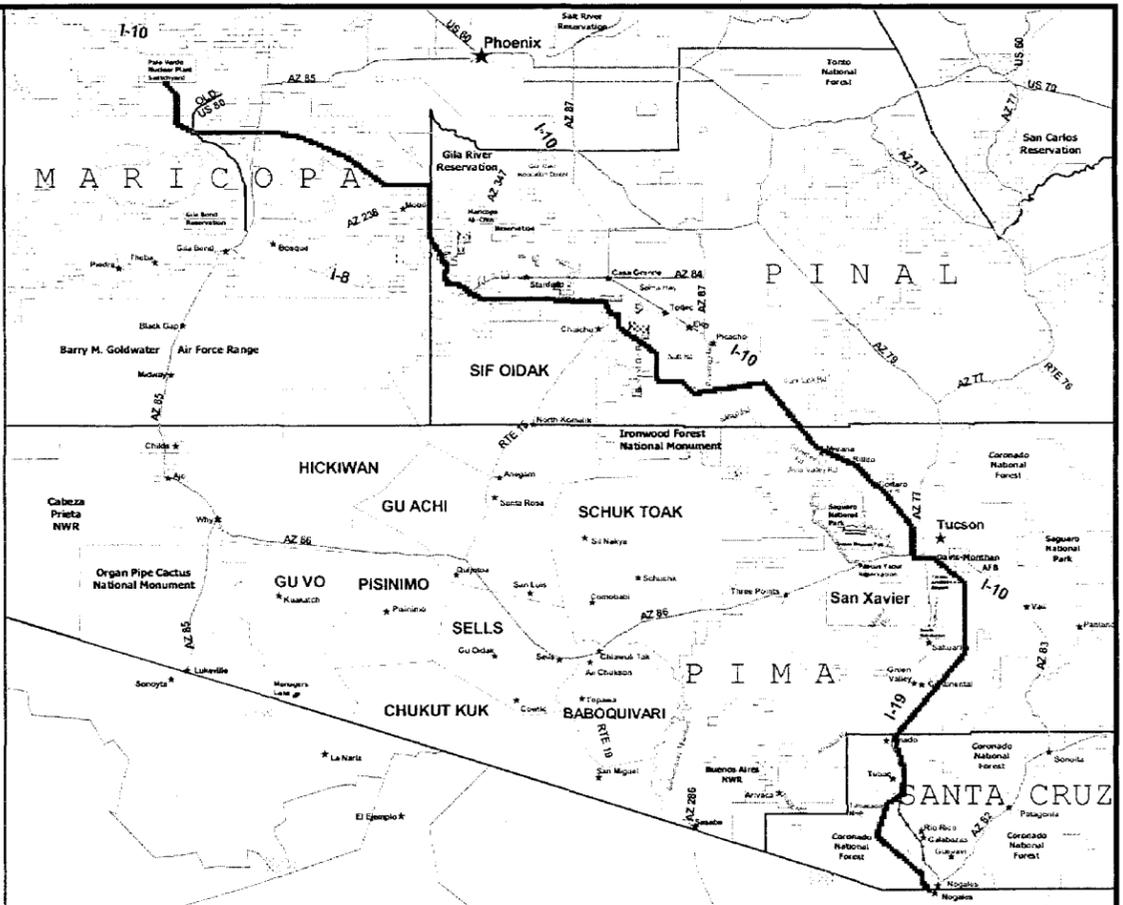
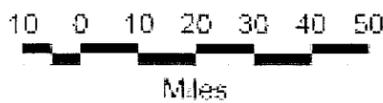
N A N B

This corridor runs about 230 miles from the PVNGS Switchyard to Nogales. South of Picacho, this corridor's A and B Options diverge. Option A continues south, paralleling the north and east boundaries of the Ironwood Forest National Monument. Option B turns due east, then southeast paralleling I-10 to Marana, then southwest to rejoin Option A. The corridor then runs between the Ironwood Forest National Monument/Tohono O'odham Nation and Saguaro National Park/Tucson Mountain Park before turning south. Near Amado, the corridor crosses to the east side of I-19, returns to the west of I-19 south of Tumacacori, then parallels an existing natural gas pipeline to Nogales.

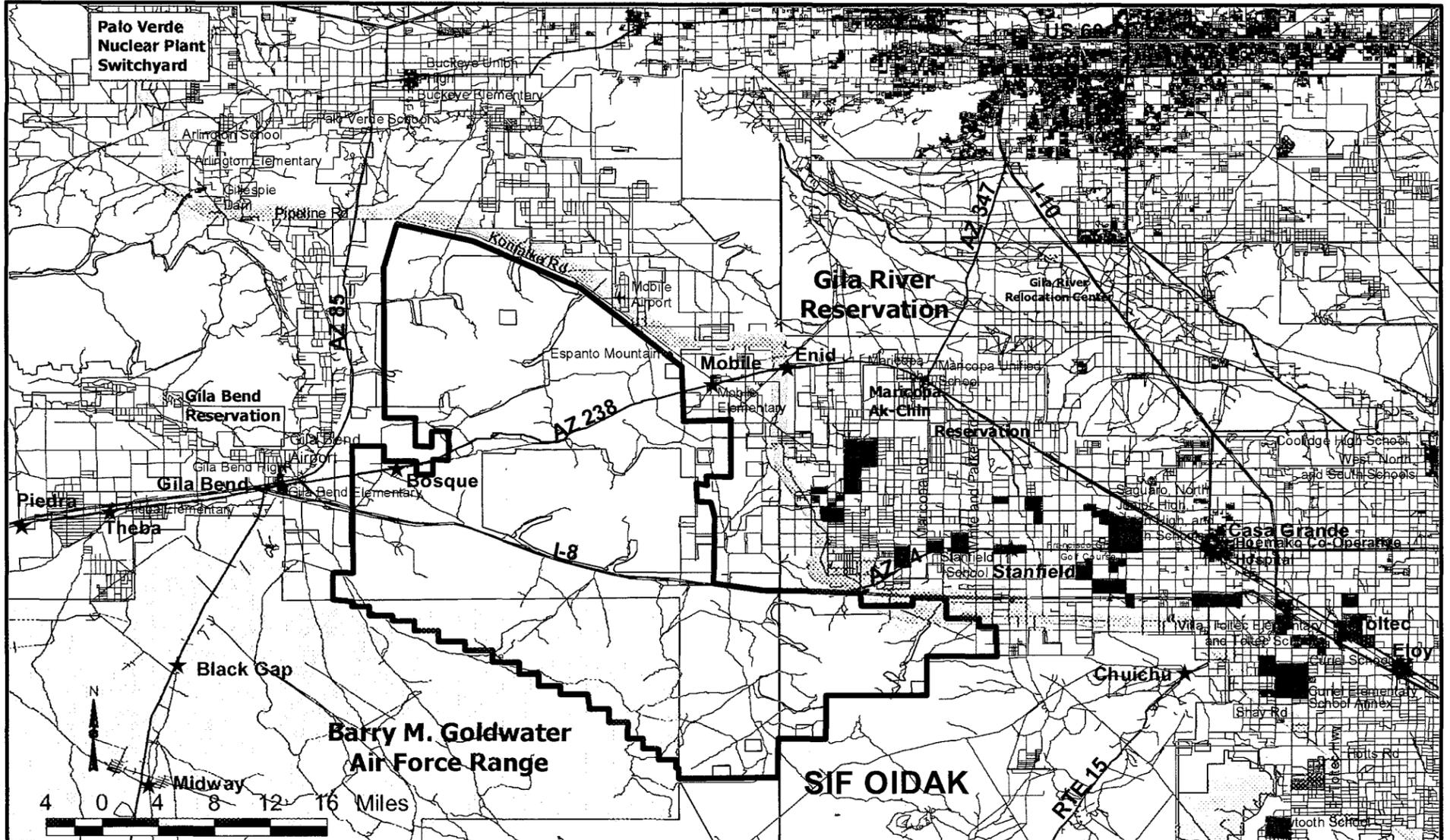


## Tucson Corridor

This corridor runs about 230 miles from the PVNGS Switchyard to Nogales. This corridor parallels I-10 through Tucson, turns south, and continues on the east of I-19 to a point south of Tumacacori where it crosses to the west of I-19, then parallels an existing natural gas pipeline to Nogales.



# CLOSE-UP #1 - Palo Verde to Interstate 8 Area



Alternative Corridors	U.S. Highway	Land Use/Land Ownership (Not Otherwise Labeled)	Tohono O'odham Trust Lands	State/Private/Other
Roads/Other Features	State Highway	Sonoran Desert National Monument	Tohono O'odham Nation	Hospital
Interstate Highway	Local Roads	Pinal County Development	BLM	School

Note: Study corridors are either 1 or 3 miles wide.

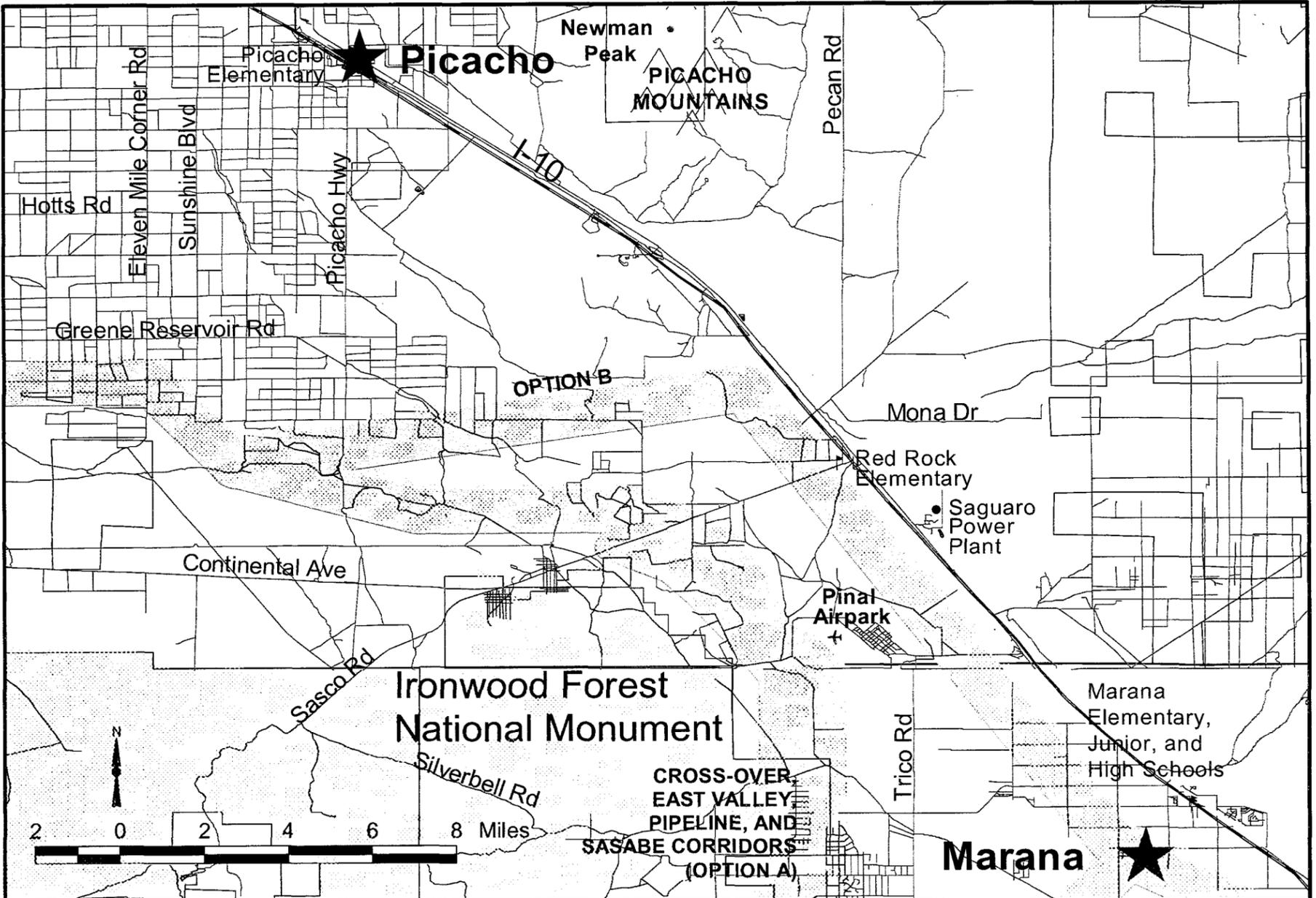
## CLOSE-UP #1: PALO VERDE TO INTERSTATE 8 AREA\*

This 113.3-mile-long corridor segment is common to all of the alternative corridors. It crosses Pinal County development, BLM-owned, and state/private/other lands.

This corridor segment begins at the Palo Verde Nuclear Generating Plant (PVNGP) Switchyard and ends at a point approximately 13 miles due south of Toltec. As the corridor segment leaves the PVNGP Switchyard, it follows Wintersburg Road south for 2.5 miles, heads east for 0.6 mile, changes to the southeast for 1.5 miles, and heads south for 4.6 miles. The corridor segment then travels southeast for 4.1 miles and turns due east for 10.5 miles. The corridor segment then follows a generally southeastern path for approximately 20 miles. Along this section, the corridor segment runs north of and parallel to the Sonoran Desert National Monument boundary; the Mobile Airport lies within the corridor segment along this stretch. At a point 5 miles northwest of Mobile, the corridor segment heads east for 7 miles, takes a 90-degree turn to the south at the Gila River Indian Reservation, runs parallel with 99th Avenue, crosses State Highway 238 (Maricopa Road), and follows the Maricopa/Pinal County line for 9 miles, passing just west of Enid. It then zigzags in a south-southeasterly direction for 15.2 miles following an unnamed road, crosses the intersection of Interstate Highway 8 and State Highway 84, and runs east for 18.1 miles, roughly running parallel to and south of Interstate Highway 8. The corridor segment then takes a 4.2-mile south-southeasterly path, crossing Route 15 and paralleling the northeastern corner of the Sif Oidak District of the Tohono O'odham Nation. Finally, it follows a southeasterly path for 7.2 miles, turns due south for 4.5 miles (bordering the eastern edge of the Tohono O'odham Nation Trust Land for 2.4 miles), turns southeast for 1 mile, then east for 1.6 miles.

\* The actual corridor width would be 300 feet. However, for the purpose of the EIS analysis, the width of the corridor will be expanded to 1 mile (and a 9-mile-long portion will be expanded to 3 miles) to conservatively account for all possible impacts.

# CLOSE-UP #2 - Picacho to Marana Area



	Roads/Other Features		Land Use/Land Ownership (Not Otherwise Labeled)		Symbol

Note: Study corridors are either 1 or 2 miles wide.

## CLOSE-UP #2: PICACHO TO MARANA AREA\*

This close-up depicts two options for corridor segments in the Picacho-Marana area. The first, Option A for the Cross-Over, East Valley, Pipeline, and Sasabe Corridors, runs along the northeastern boundary of the Ironwood Forest National Monument. The second is a corridor segment for the Tucson Corridor and is Option B for the Cross-Over, East Valley, Pipeline, and Sasabe Corridors.

### **For the Tucson Corridor**

On this map, the segment described as Option B below is also common to the Tucson Corridor. The segment begins 4 miles west of the Options A and B split, south of Picacho, and continues in a southeasterly direction beyond Marana where the Option B segment turns south.

### **For Corridors with an Option A**

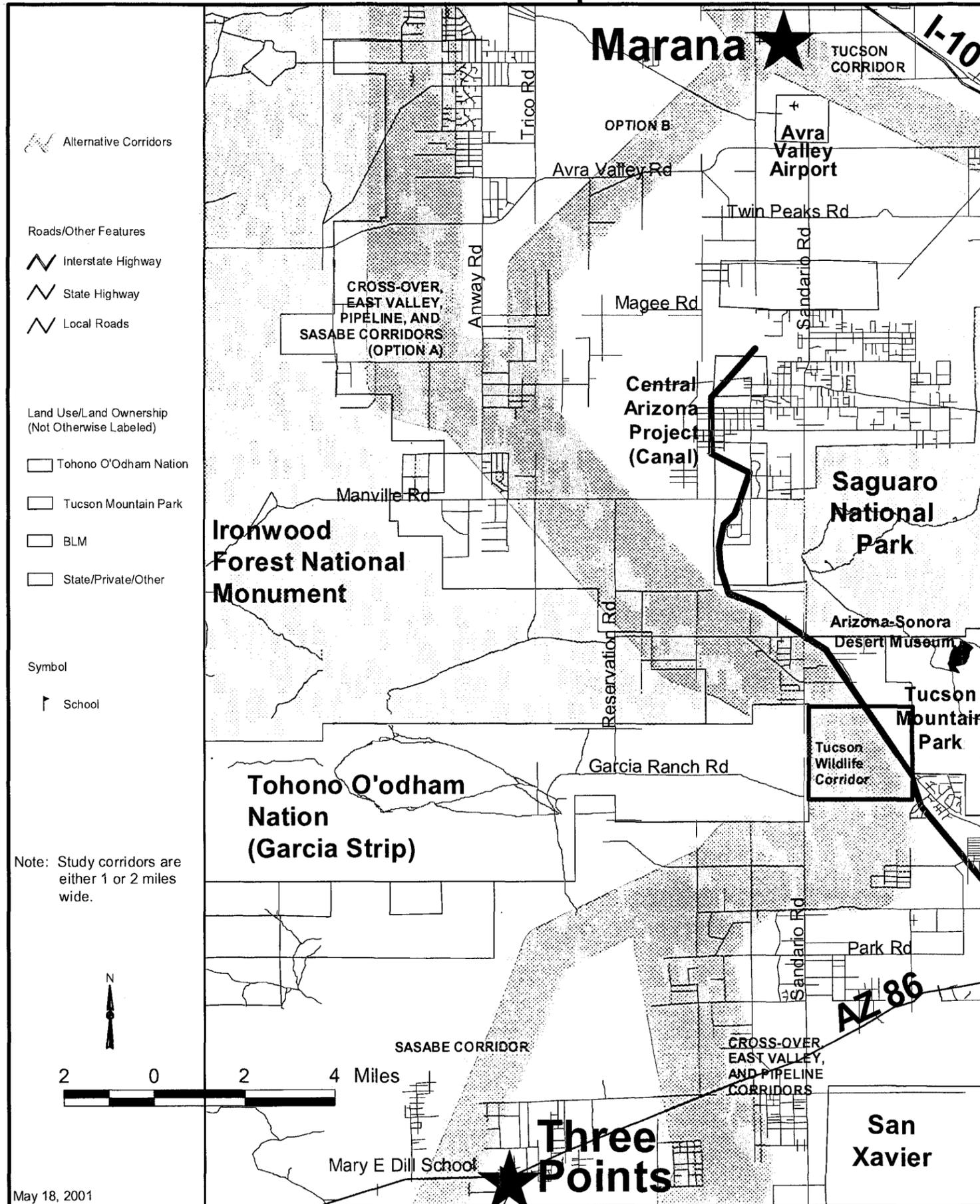
On this map, from the point where the two options diverge, Option A travels generally east 8.7 miles, then generally southeast for 9.7 miles, running along the Ironwood Forest National Monument's northeastern boundary. It then heads south for 11.7 miles (approximately 5 miles of that 11.7-mile stretch are shown on this map), roughly parallel to the eastern boundary of the Ironwood Forest National Monument. The description of this option continues on Close-up #3.

### **For Corridors with an Option B**

This option, in its entirety, is approximately 35 miles long. It starts 10 miles south of Picacho and ends 10.3 miles southwest of Marana (the termination point is shown on Close-up #3). It heads northeast for 10.3 miles, southeast for 13.7 miles (crossing Sasco Road after 2.5 miles), running parallel with Interstate Highway 10. It crosses four power lines that leave the Saguaro Power Plant. The option then heads southwest (see Close-up #3).

\* The actual corridor width would be 300 feet. However, for the purpose of the EIS analysis, the width of each corridor will be expanded to 1 mile (and in some cases, 2 miles) to conservatively account for all possible impacts.

# CLOSE-UP #3 - Ironwood/Garcia Strip Area



## CLOSE-UP #3: IRONWOOD/GARCIA STRIP AREA\*

This close-up shows the southern end of Option B for the East Valley, Sasabe, Pipeline, and Cross-Over Corridors. It also shows the mid-point of Option A for the same corridors.

Starting in the upper left corner, Option A travels south and southeast around the Ironwood Forest National Monument and the Garcia Strip. Option B passes through Marana and ends 10.3 miles to the southwest where it merges into the Option A corridor segment. Detailed descriptions are provided below.

### Option A

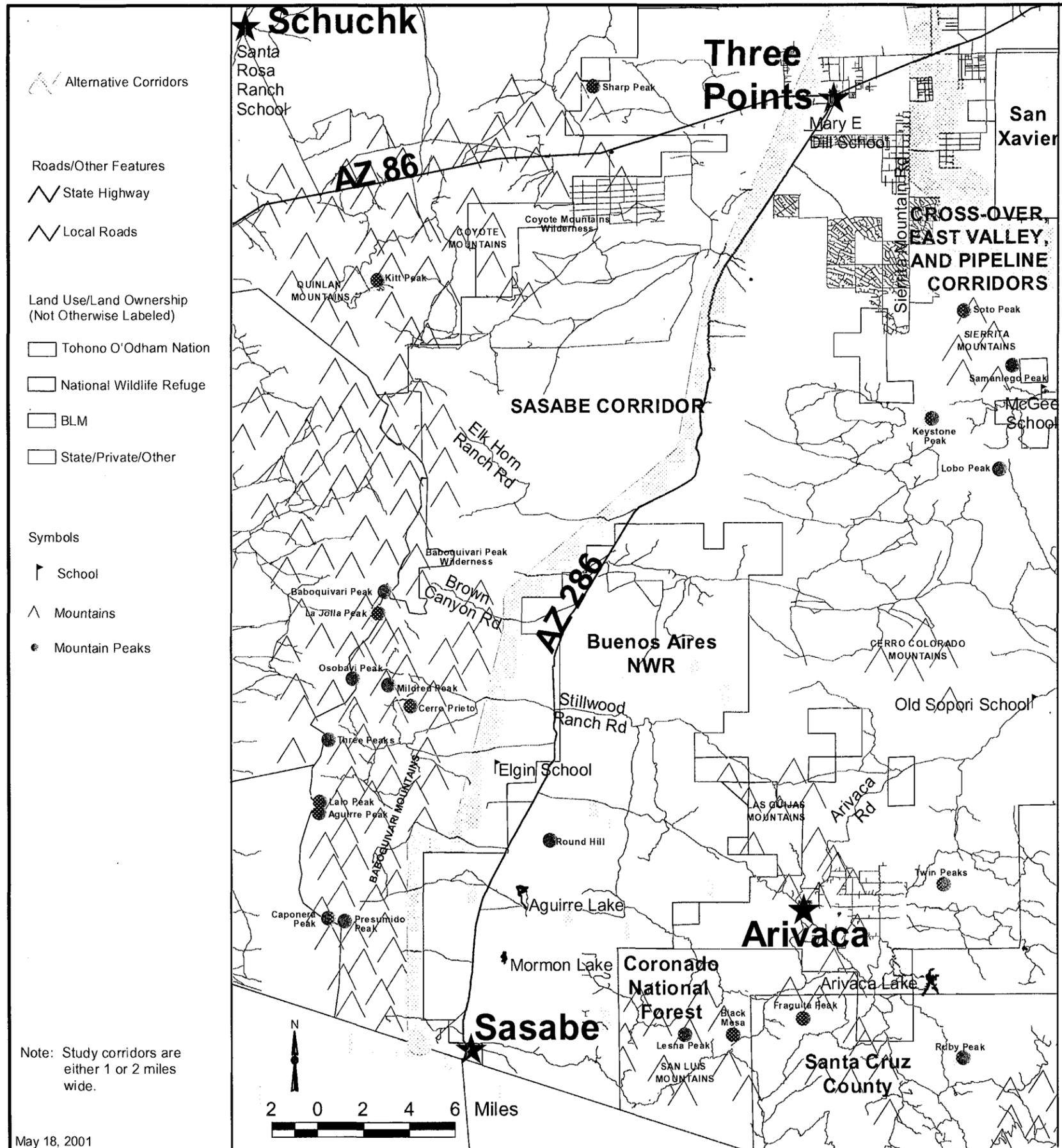
This corridor segment travels south for 11.7 miles, running roughly parallel to the eastern boundary of the Ironwood Forest National Monument (approximately 8 miles of that 11.7-mile stretch are shown on this map). It then runs southeast for 14.5 miles, bordering the Ironwood Forest National Monument and the "Garcia Strip" of the Tohono O'odham Nation to the west and the Saguaro National Park and Tucson Mountain Park to the east (the Arizona-Sonora Desert Museum is approximately 2 miles to the east-northeast). This corridor segment also runs parallel with the Central Arizona Project canal for approximately 5.5 miles. The segment bends around the Garcia Strip, traveling 2.6 miles to the west and 1.5 miles to the southwest. From this point, the Sasabe Corridor heads southwest for 4.5 miles, passing west of Three Points. The Cross-Over, East Valley, and Pipeline Corridors continue south for 3.8 miles.

### Option B

This close-up depicts the last 11 miles of Option B for the Cross-Over, East Valley, Pipeline, and Sasabe corridors. From Marana, the Option B segment travels southwest for 6.5 miles (crossing the Santa Cruz River, Avra Valley Road, and Brawley Wash, at 1, 3.7 and 5.5 miles into its path, respectively). The corridor segment then heads south for 4.4 miles until it rejoins the Option A segment common to the Cross-Over, East Valley, Pipeline, and Sasabe Corridors.

\* The actual corridor width would be 300 feet. However, for the purpose of the EIS analysis, the width of each corridor will be expanded to 1 mile (and in some cases, 2 miles) to conservatively account for all possible impacts.

# CLOSE-UP #4 - Three Points to Sasabe Area

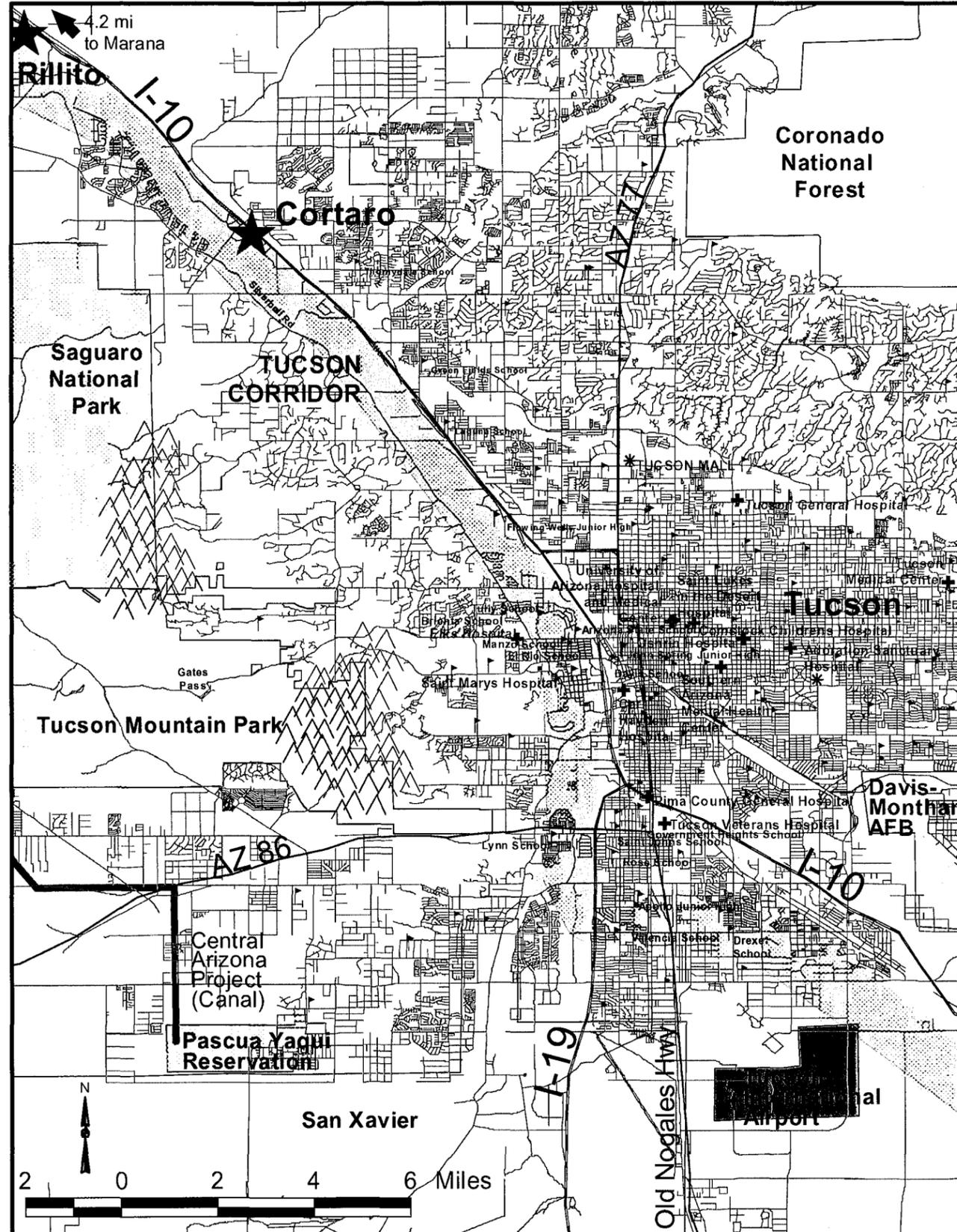


## CLOSE-UP #4: THREE POINTS TO SASABE AREA\*

The southern part of the Sasabe Corridor travels south-southwest for 59.2 miles, from Three Points to Sasabe. It initially crosses Brawley Wash and State Highway 86 (Ajo Way) west of Three Points, then continues to the southwest, running parallel to and west of State Highway 286. The Sasabe Corridor continues through Altar Valley, with the Baboquivari Mountains to the west and the Buenos Aires National Wildlife Refuge to the east. The last 8.5 miles of this corridor run due south to the U.S.-Mexico border, along the western boundary of the Buenos Aires National Wildlife Refuge.

\* The actual corridor width would be 300 feet. However, for the purpose of the EIS analysis, the width of each corridor will be expanded to 1 mile (and in some cases, 2 miles) to conservatively account for all possible impacts.

# CLOSE-UP #5 - Tucson Area



## CLOSE-UP #5: TUCSON AREA\*

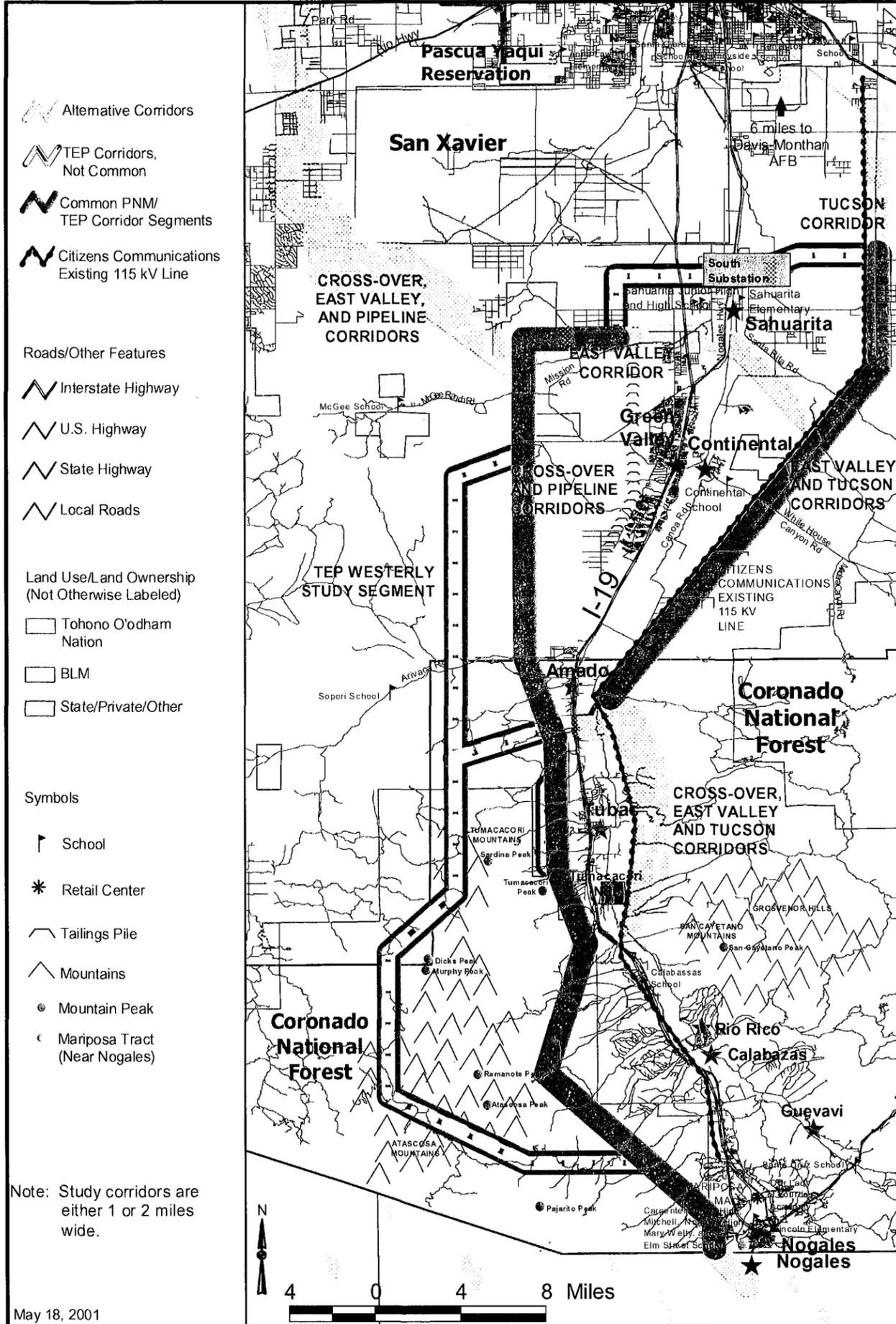
From Rillito, approximately 4 miles south of Marana, this corridor travels in a southeast direction, parallel to and south of Interstate Highway 10. In Tucson, in the vicinity of the Speedway Boulevard and Interstate Highway 10 intersection, the corridor turns due south for 4.2 miles, crossing State Highway 86 (Ajo Way). It resumes a southeasterly course for 1 mile, heading east across Interstate Highway 19 south of Tucson, continues east for 3 miles (crossing Business 19, Old Nogales Highway), turns southeast for 3.4 miles, and then south for 3.7 miles. This corridor comes within 0.5 mile of the Tucson International Airport and 1 mile of the Arizona State Prison Complex.

\* The actual corridor width would be 300 feet. However, for the purpose of the EIS analysis, the width of each corridor has been expanded to 1 mile to conservatively account for all possible impacts.

Alternative Corridors	State Highway	Land Use/Land Ownership (Not Otherwise Labeled)	State/Private/Other	Retail Center
Roads/Other Features	Local Roads	Tohono O'Odham Nation	Symbols	Hospital
Interstate Highway		BLM	School	Mountains

Note: Study corridors are 1 mile wide.

# CLOSE-UP #6 - Green Valley to Nogales Area



## CLOSE-UP #6: GREEN VALLEY TO NOGALES AREA\*

This close-up depicts segments of the East Valley, Pipeline, Cross-Over, and Tucson Corridors in the Green Valley-Nogales area.

To assist the reader, this map also depicts transmission corridors proposed by Tucson Electric Power Company (TEP) in its Presidential permit application. Segments in lavender are unique to PNM's proposal; segments in blue are common to corridors proposed by both PNM and TEP; and segments outlined in brown with brown "hash marks" represent corridor segments proposed only by TEP.

### East Valley Corridor

From the upper left corner of this map, the East Valley Corridor, depicted as a 2-mile-wide study corridor, zigzags south for 9.4 miles, curving around the southwest corner of the San Xavier District, and continues southeast for 6.7 miles. At this point, approximately 8 miles northwest of Green Valley, the study corridor becomes 1 mile wide and heads east for almost 8 miles along a path that is about 4 miles south of and parallel to the San Xavier District's southern boundary. The corridor crosses Interstate Highway 19 and the Santa Cruz River just south of Sahuarita. It turns southeast for approximately 6 miles to meet the existing Citizens Communications 115-kV transmission line corridor, then turns southwest for 16.5 miles to the east of, and parallel to, the existing transmission line. At a point approximately 3 miles southeast of Amado, the study corridor widens to 2 miles and continues to head south, remaining parallel to the existing 115-kV transmission line for 8.3 miles. Approximately 2 miles south of Tumacacori National Historical Park, the study corridor again becomes 1 mile wide and turns southwest for 3.3 miles, crossing Interstate Highway 19 and entering the Coronado National Forest. The proposed corridor meets the existing El Paso Natural Gas Pipeline corridor in the Forest, turns south, and continues, parallel to the natural gas pipeline, approximately 16 miles, where it exits Forest land at a point west of the City of Nogales, Arizona. The corridor then heads south 1.5 miles to the international border with Mexico.

### Pipeline Corridor

From the upper left corner of this map, the Pipeline Corridor, depicted as a 2-mile-wide study corridor, zigzags south for 9.4 miles, curving around the southwest corner of the San Xavier District, and continues southeast for 6.7 miles. Approximately 8 miles northwest of Green Valley, the study corridor narrows to 1 mile wide. It meets the existing El Paso Natural Gas Pipeline, turns south along the pipeline right-of-way, and continues approximately 45 miles south to and through the Coronado National Forest, remaining west of Interstate Highway 19 past Amado, Tubac, and the Tumacacori National Historical Park. The proposed corridor exits the Forest at a point west of the City of Nogales, Arizona, then heads south 1.5 miles to the international border with Mexico.

### Cross-Over Corridor

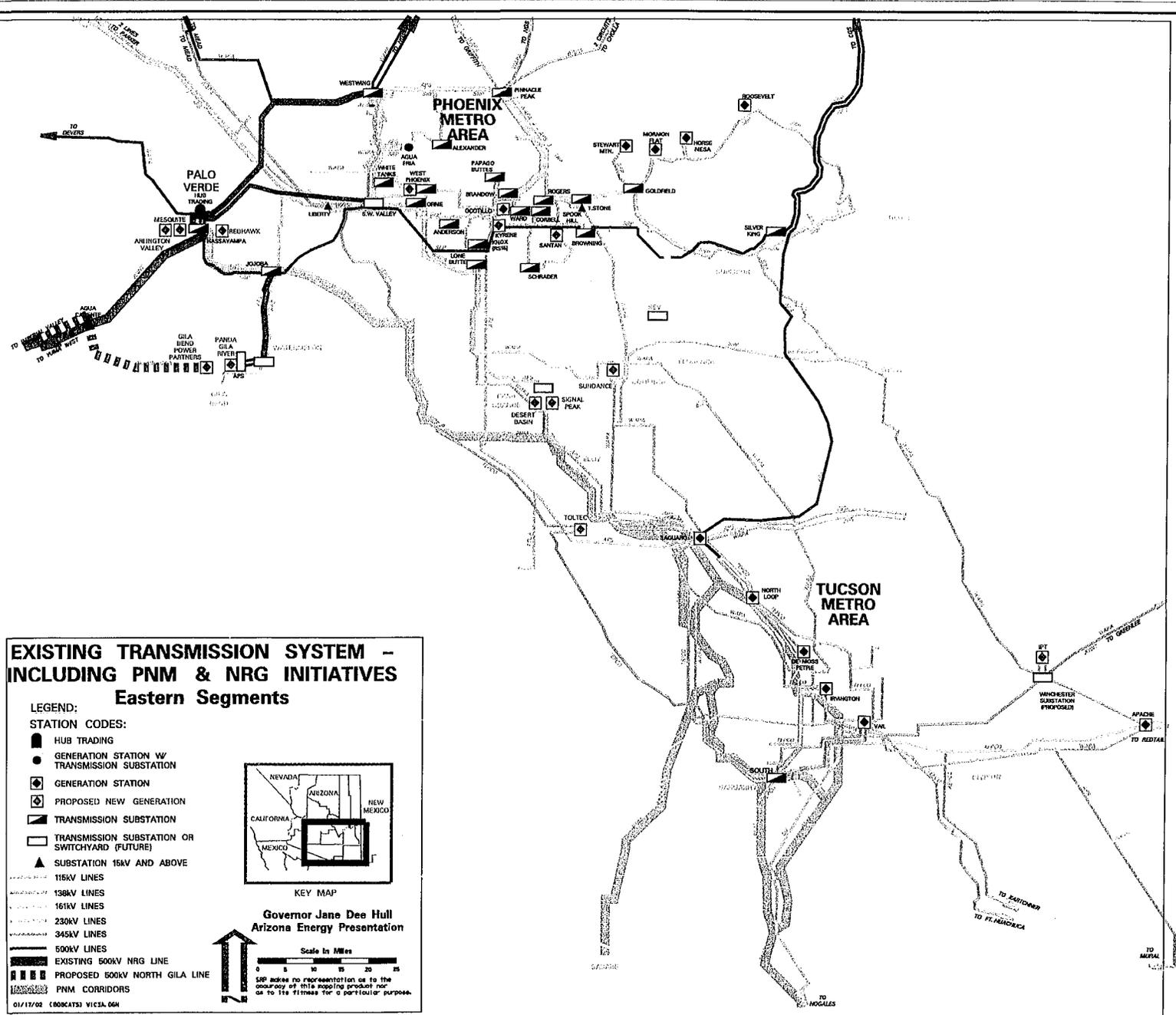
From the upper left corner of this map, the Cross-Over Corridor, depicted as a 2-mile-wide study corridor, zigzags south for 9.4 miles, curving around the southwest corner of the San Xavier District, and continues southeast for 6.7 miles. Approximately 8 miles northwest of Green Valley, the study corridor narrows to 1 mile wide. It meets the existing El Paso Natural Gas Pipeline, turns south, and continues along the pipeline right-of-way approximately 14 miles. Approximately 2 miles southwest of Amado, on the west side of Interstate Highway 19, the corridor turns east for 3.5 miles, crossing the highway and crossing Citizens Communications' existing 115-kV transmission line, to a point approximately 3 miles southeast of Amado. The study corridor then widens to 2 miles and heads south for 8.3 miles, remaining east of and parallel to the existing transmission line. Approximately 4 miles southeast of Tubac, it narrows again to a 1-mile-wide study corridor and turns southwest for 3.3 miles, crossing Interstate Highway 19 and entering the Coronado National Forest. The proposed corridor meets the existing El Paso Natural Gas Pipeline corridor in the Forest, turns south, and continues, parallel to the natural gas pipeline, approximately 16 miles, exiting the Forest at a point west of the City of Nogales, Arizona. The corridor then heads south 1.5 miles to the international border with Mexico.

### Tucson Corridor

In the upper right corner of this map, the Tucson Corridor travels southeast for approximately 5.6 miles, crossing Citizens Communications' existing 115-kV transmission line. It then heads due south running parallel to and east of the transmission line for 13.3 miles. The Tucson Corridor then veers southwest, continuing to parallel the transmission line to a point southeast of Amado. The study corridor widens to 2 miles and continues south, paralleling the existing 115-kV transmission line for 8.3 miles. Approximately 2 miles south of Tumacacori National Historical Park, the study corridor again becomes 1 mile wide and turns southwest for 3.3 miles, crossing Interstate Highway 19 and entering the Coronado National Forest. The proposed corridor meets the existing El Paso Natural Gas Pipeline corridor in the Forest, turns south, and continues, parallel to the natural gas pipeline, approximately 16 miles, exiting the Forest at a point west of the City of Nogales, Arizona. The corridor then heads south 1.5 miles to the international border with Mexico.

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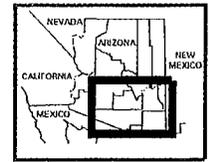
Note: Study corridors are either 1 or 2 miles wide.



**EXISTING TRANSMISSION SYSTEM - INCLUDING PNM & NRG INITIATIVES**  
**Eastern Segments**

- LEGEND:**
- STATION CODES:**
- HUB TRADING
  - GENERATION STATION w/ TRANSMISSION SUBSTATION
  - GENERATION STATION
  - PROPOSED NEW GENERATION
  - TRANSMISSION SUBSTATION
  - TRANSMISSION SUBSTATION OR SWITCHYARD (FUTURE)
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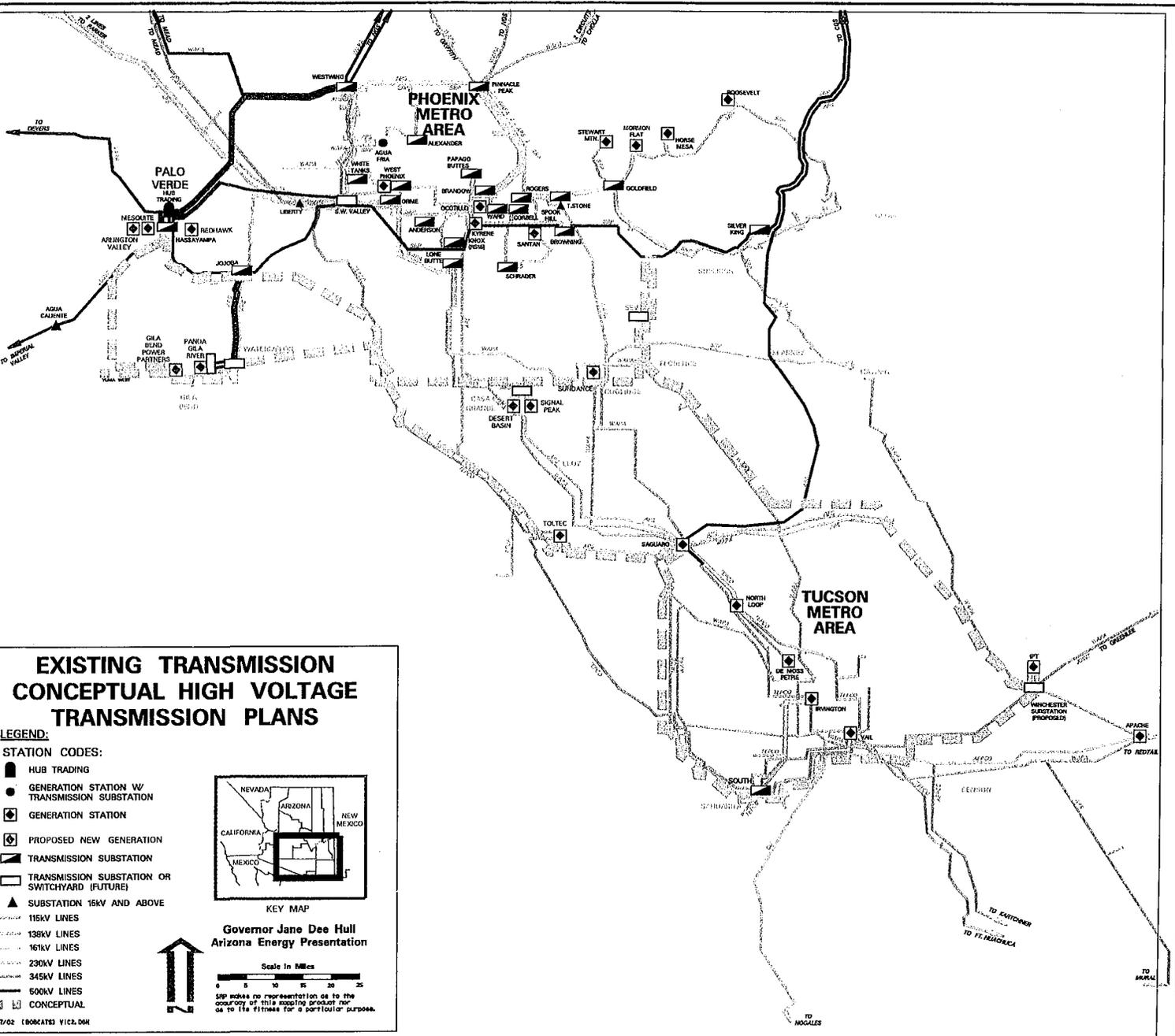
- 115kV LINES
- 138kV LINES
- 161kV LINES
- 230kV LINES
- 345kV LINES
- 500kV LINES
- EXISTING 500kV NRG LINE
- PROPOSED 500kV NORTH GILA LINE
- PNM CORRIDORS



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Scale in Miles  
 0 5 10 15 20 25

SPP makes no representation as to the accuracy of this mapping product nor as to its fitness for a particular purpose.



## EXISTING TRANSMISSION CONCEPTUAL HIGH VOLTAGE TRANSMISSION PLANS

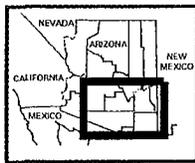
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**STATION CODES:**

-  HUB TRADING
-  GENERATION STATION W/  
TRANSMISSION SUBSTATION
-  GENERATION STATION
-  PROPOSED NEW GENERATION
-  TRANSMISSION SUBSTATION
-  TRANSMISSION SUBSTATION OR  
SWITCHYARD (FUTURE)
-  SUBSTATION 15KV AND ABOVE

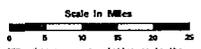
-  115KV LINES
-  138KV LINES
-  161KV LINES
-  230KV LINES
-  345KV LINES
-  500KV LINES
-  CONCEPTUAL

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KEY MAP

**Governor Jane Dee Hull  
Arizona Energy Presentation**

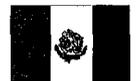


Scale in Miles  
0 5 10 15 20 25  
See also no representation as to the  
accuracy of this existing product nor  
as to its fitness for a particular purpose.



# **Benefits of Interconnections for the US and Mexico**

- ◆ **Increased reliability of electric power service in both countries through sharing of resources, mutual support in emergencies and coordinated planning of new supplies.**
- ◆ **Energy cost savings resulting from diversity of peak demand patterns and coordination of dispatch and operations.**
- ◆ **Infrastructure support for continued economic development along the US/Mexico Border with open access to competitive and diverse supplies within the Western energy markets.**





# **Benefits of Interconnections for the US and Mexico**

- ◆ **Large increase in positive trade balance in the near term**
- ◆ **The potential energy market becomes all of North America with free flow of electricity between Canada, the United States and Mexico.**
- ◆ **New industries can consider siting on either side of the border with access to the same competitive energy suppliers.**
- ◆ **Greater regional reliability and adequacy of electric supply throughout north America.**





# Synchronous vs. Asynchronous

- ◆ **The first and largest question for any interconnection is that of synchronous versus asynchronous design and operation.**
- ◆ **The AC/DC/AC converter proposed by PNM adds significant cost to the project.**
- ◆ **A synchronous interconnection may appear to offer lower initial construction costs but carries numerous other potential hidden costs in operation**





# Examples of “Costs” for a Synchronous Interconnection

- ◆ **Reduced Reliability - Increased exposure to disturbances in neighboring system.**
- ◆ **Need for detailed coordination of planning, design and operational criteria.**
- ◆ **Inability to schedule and direct energy flows in and out of the system.**
- ◆ **Potential for system and financial impacts from loop flow during normal operation and inadvertent flows during emergencies.**





# Benefits to Arizona

## ◆ Direct Benefits

- **Added Tax Base** – estimated would increase the tax base in Arizona by over \$390 million dollars – estimated annual taxes over over \$10 million
- **Additional Electric Supply** – would provide opportunity for unrestricted and competitive power supply to Southern Arizona from “Market Hub” at Palo Verde
- **Would provide a second geographically diverse source of electric supply and support from Mexican system.**





# Benefits to Arizona

## ◆ Direct Benefit (cont)

- Available for support and reinforcement of existing transmission system
- Project is compatible with conceptual long range transmission development in Arizona
- Converter would isolate Arizona and Mexican Power Systems from problems on the other Electric System





# Indirect Benefits of Interconnection

- ◆ **Indirect Benefits**
  - Encourage dispersion of industrial development further into interior and away from the border.
  - Reduce immigration problems by supporting economic development and job creation in Mexico.
  - Support and facilitate development in border region for increased trade between Mexico and Arizona.

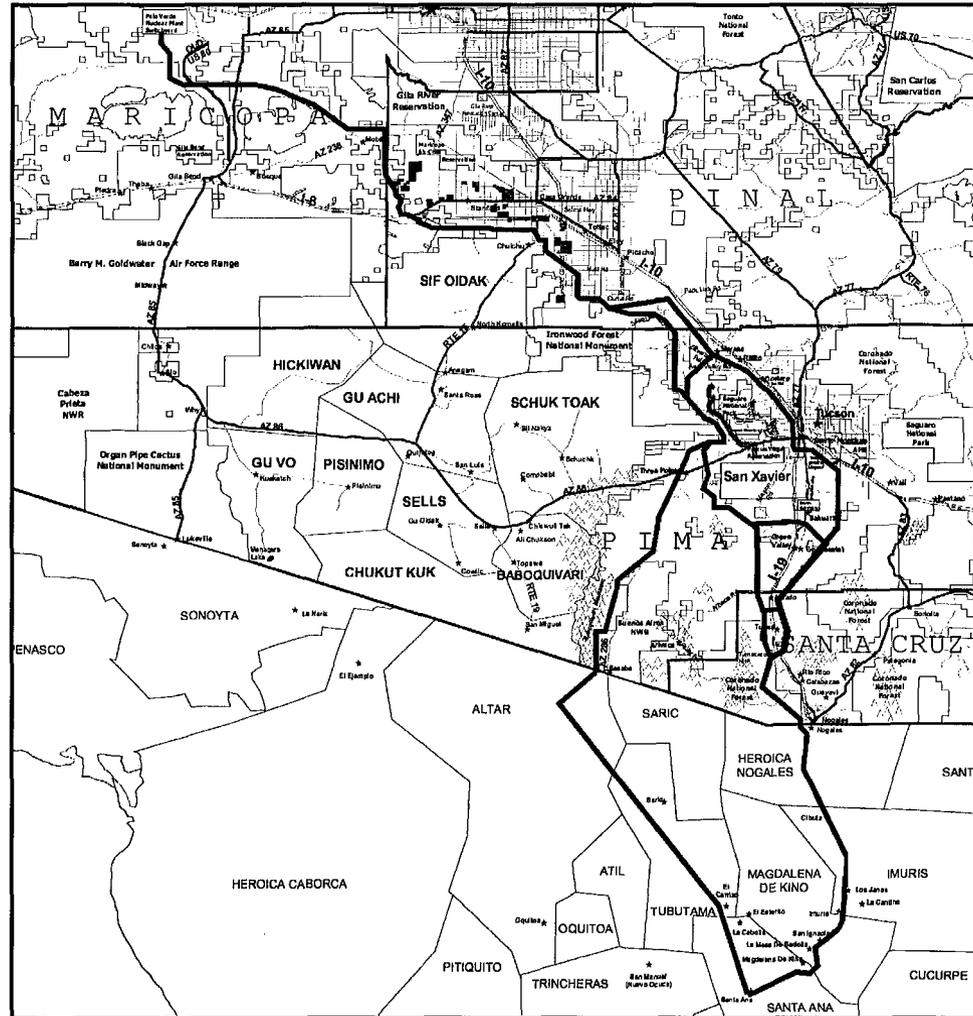




# EIS Process

- ◆ **DOE acting as Lead Agency due to Presidential Permit requirement**
- ◆ **Three federal agencies directly affected**
  - **Two have agreed to cooperating agency status**
    - **Bureau of Land Management**
    - **US Forest Service**
  - **US Bureau of Reclamation has declined status as cooperating agency**
- ◆ **Five alternative corridor/routes remain under consideration**





**All Proposed Corridors to Santa Ana, Mexico**



# Public Scoping Process

- ◆ **Four separate public scoping periods**
  - **Original Period opened February 2, 1999 and Closed March 14, 1999**
  - **Second period opened June 10, 1999 and closed July 14, 1999**
  - **Third period opened July 20, 2000 and closed October 2, 2000**
  - **Fourth period opened May 18, 2001 and closed June 22, 2001**





# Public Scoping Process

◆ 13 sites were utilized for scoping

Nogales

Patagonia

Tucson

Sells

Ajo

Gila Bend

Casa Grande

Green Valley

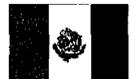
Tubac

Sasabe

Three Points

Rio Rico

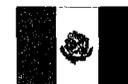
Marana





# Results of Scoping

- ◆ **125 participants provided oral comments during scoping process**
- ◆ **Approximately 500 letters, electronic mail messages, facsimiles and phone calls have been received by DOE**
- ◆ **Five corridors, six segments and five technical alternatives have been eliminated during the EIS analysis period**





# Corridors Eliminated

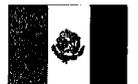
- ◆ Tohono O'odham alternatives
- ◆ Highway 82-83 alternatives
- ◆ Routes east of Highway 82-83 alternative
- ◆ Route through Organ Pipe Cactus National Monument
- ◆ Route west of Organ Pipe National Monument and Cabeza Prieta NWR





# Segments Eliminated

- ◆ Segment south of Palo Verde Switchyard
- ◆ Segment north of Interstate Highway 8
- ◆ Segment east of Chuichu
- ◆ Segment from Nut Road to Curtis Road
- ◆ Segment through Garcia Strip
- ◆ Segment south of Davis-Monthan Air Force Base







# Technical Options Eliminated

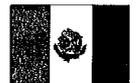
- ◆ DC transmission lines
- ◆ Construction of power plants in or closer to Mexico
- ◆ Construction of wind or solar power facilities
- ◆ Burial of the transmission lines
- ◆ Use of existing transmission lines in certain areas





# Permit Requirements

- ◆ Presidential Permit
- ◆ Export Authorization
- ◆ Permits of Cooperating Agencies
- ◆ Certificate of Environmental Compatibility (CEC) from Arizona Corporation Commission
- ◆ Over 36 Other Major Permitting, Licensing or Approval requirements at federal, state and county levels (see separate list)





# Permitting Issues

- ◆ **Length of project ( $\approx$ 237 miles in the US)**
  - ◆ **Number of permits, licenses or approvals required**
- ◆ **Concentration of parks, monuments, Indian lands, Forest lands and wildlife reserves in southern Arizona**
  - ◆ **Scarcity of potential routing options**
- ◆ **Independent siting processes at state and federal levels**
- ◆ **Missing participation of important federal agency**





# Status of The S-AIP Project

- ◆ **Application for a Presidential Permit was made in December 1998.**
- ◆ **Environmental Impact Analysis is well underway with completion expected by early summer 2002 and Record of Decision by fall.**
- ◆ **Anticipated application for Arizona CEC by early summer with availability of Draft EIS**
- ◆ **Currently anticipated in-service date for overall project is mid-2004.**



**Other Major Permits, Licenses, and Approvals Required for the  
Sonora-Arizona Interconnection Project**

<b>Requirement</b>	<b>Citation<sup>a</sup></b>	<b>Responsible Agency</b>	<b>Explanation</b>
<b>Federal Statutes</b>			
American Indian Religious Freedom Act	42 U.S.C. 1996	Department of Energy and other land management agencies	Consider Native American religious values when undertaking Federal projects
Antiquities Act	16 U.S.C. 431 et seq.	Department of the Interior	Consider whether to grant permission to proceed if proposed project would cause adverse effects to historic or prehistoric ruins, monuments, paleontological resources on public lands
Atomic Energy Act	42 U.S.C. 2011 et seq.	Nuclear Regulatory Commission	Issue right-of-way permit
Clean Air Act	42 U.S.C. 7609	Environmental Protection Agency	Review and comment on draft EIS
Clean Water Act	33 U.S.C. 1344	Army Corps of Engineers	Issue permit(s) for placement of dredge or fill in waters of the United States, including wetlands; issue permit(s) for structures affecting navigable waters of the United States
River and Harbors Act	33 U.S.C. 401-413		
Endangered Species Act	16 U.S.C. 1531 et seq.	Department of the Interior, Fish and Wildlife Service	Determine impacts to threatened or endangered species; issue Biological Opinion, if necessary
Farmland Protection Policy Act	7 U.S.C. 4201 et seq.	Department of Agriculture, Soil Conservation Service	Evaluate impacts to farmland
Federal-Aid Highway Act	23 U.S.C. 111	Department of Transportation, Federal Highway Administration	Authorize crossing of Federal interstate highways
Federal Aviation Act	49 U.S.C. 44718	Federal Aviation Administration	Review plans to determine if transmission lines would impede the approach or takeoff path of aircraft
Federal Land Policy and Management Act	43 U.S.C. 1701 et seq.	Department of the Interior, Bureau of Land Management	Issue right-of-way grants to cross public lands managed by Bureau of Land Management
Federal Power Act	16 U.S.C. 824a(e)	Department of Energy	Issue Export Authorization
Fish and Wildlife Coordination Act	16 U.S.C. 661 et seq.	Department of the Interior, U.S. Fish and Wildlife Service	Consult on impoundments, modifications, or diversions of streams or other water bodies in excess of 10 acres of surface area

**Otehr Major Permits, Licenses, and Approvals Required for the  
Sonora-Arizona Interconnection Project (cont)**

<b>Requirement</b>	<b>Citation<sup>a</sup></b>	<b>Responsible Agency</b>	<b>Explanation</b>
Migratory Bird Treaty Act	16 U.S.C. 703 et seq.	Department of the Interior, U.S. Fish and Wildlife Service	Consult on ways to avoid or minimize effects on migratory birds
National Forest Organic Act	16 U.S.C. 521	Department of Agriculture, U.S. Forest Service	Issue right-of-way or special use permit to cross National Forest System land
National Historic Preservation Act	16 U.S.C. 470 et seq.	Advisory Council on Historic Preservation	Consult on impacts to properties listed or eligible to be listed on National Register of Historic Places
Taylor Grazing Act	43 U.S.C. 315-316	Department of the Interior, Bureau of Land Management	Issue right-of-way grants across grazing allotments, if any
Wild and Free-Roaming Horses and Burros Act	16 U.S.C. 1331 et seq.	Department of the Interior, Bureau of Land Management	Consult on potential impacts of proposed actions on wild horses or burros on public lands managed by Bureau of Land Management
<b>Federal Executive Orders</b>			
Executive Order 11988, Floodplain Management	42 FR 26951 (1977)	Department of Energy	Evaluate floodplain effects
Executive Order 11990, Protection of Wetlands	42 FR 26961 (1977)	Department of Energy	Evaluate potential wetland effects
Executive Order 12038, Relating to Certain Functions Transferred to the Secretary of Energy by the Department of Energy Organization Act	43 FR 4957 (1978)	Department of Energy	Issue Presidential permit
Executive Order 13212, Actions to Expedite Energy-Related Projects	66 FR 28357 (2001)	Council on Environmental Quality/Department of Energy	Define policy on energy-related projects, establish interagency task force, and provide for judicial review of agency actions
<b>State Requirements</b>			
Environmental Protection	A.R.S. 49-101 et seq.	Department of Environmental Quality	May require additional environmental assessment
Game and Fish	A.R.S. 17-101 et seq.	Game and Fish Department and Game and Fish Commission	Issue Biological Opinion on state rare and endangered wildlife, if necessary
Historic Preservation	A.R.S. 41-511 et seq.	Arizona State Historic Preservation Officer	Issue cultural resources clearance prior to construction
Mines and Minerals	A.R.S. 27-101 et seq.	Department of Mines and Mineral Resources	Assess impacts to mining operations

**Other Major Permits, Licenses, and Approvals Required for the  
Sonora-Arizona Interconnection Project (cont)**

<b>Requirement</b>	<b>Citation<sup>a</sup></b>	<b>Responsible Agency</b>	<b>Explanation</b>
Native Plants	A.R.S. 3-901 et seq.	Department of Agriculture	Provide native plant clearance prior to construction
Power Plant and Transmission Line Siting	A.R.S. 40-360	Arizona Corporation Commission	Issue Certificate of Environmental Compatibility, approving location of transmission lines
State Lands	A.R.S. 37-101, 461	State Land Department	Issue right-of-way permit across state-owned lands
State Parks	A.R.S. 41-511.05	Arizona Parks Board	Issue use permits to cross state parks
State Roads	23 U.S.C. 111; A.R.S. 28-7045 et seq.	Department of Transportation	Approve structure location and issue road crossing permits for state roads and interstate highways
Water Resources	A.R.S. 45-101 et seq.	Department of Water Resources	Issue water use permit
<b>County Requirements</b>			
Maricopa County			Issue permit for transmission line crossings of public roads or streets within the county
Pinal County			Issue permit for transmission line crossings of public roads or streets within the county
Pima County			Issue permit for transmission line crossings of public roads or streets within the county
Santa Cruz County			Issue permit for transmission line crossings of public roads or streets within the county

a. U.S.C. = United States Code; FR = Federal Register; A.R.S = Arizona Revised Statute.